Digital Shorelines and Analysis for the Coastal Areas of Bering Land Bridge NP (BELA) and Cape Krusenstern NM (CAKR), Northwest Alaska

ABSTRACT

This data release consists of shoreline reference features and shoreline change analysis data and results for the coastal areas of Bering Land Bridge National Park (BELA) and Cape Krusenstern National Monument (CAKR). The data and coastal change results enables coastal erosion analysis and display of the coastline at high resolution for approximately 480 km of shoreline. The shoreline and analysis assists the goals of the NPS Arctic Network Inventory and Monitoring Program, which has a mission to "collect, compile, and synthesize scientific information about the arctic network of parks to facilitate their preservation, unimpaired, for future generations."

The shoreline reference features are defined as the waterline and were digitized onscreen from orthorectified aerial photography for the coastal areas of BELA, CAKR, and nearby portions of northwestern Alaska. Shorelines consist of three timeslices: from 2003, approximately 1980, and approximately 1950. These images and the companion shorelines were completed as part of a study on coastal erosion in collaboration between the University of Colorado (Institute of Arctic and Alpine Research) and the National Park Service (Arctic Network Inventory and Monitoring Program). The shorelines have a total length of approximately 480 km. Shoreline error was calculated using the square root of the sum of the squares (SRSS) calculation of the orthorectification and digitization errors and then annualized for each time slice. Average errors for all timeslices are 0.1 m for BELA and CAKR.

Other data available in this series includes Digital Shoreline Analysis System (DSAS) files. Together, the data will be of interest to land managers, scientists, and others for observation and analysis of natural features and ecosystems.

The shorelines are available in ArcGIS shapefile format. They have a UTM zone 3 projection and NAD83 datum, with FGDC-compliant metadata. Attribute information in the shapefile tables includes, frame number, acquisition date, comments, and line length. The shapefiles are available through an unrestricted public license, and can be obtained online at: http://www1.nature.nps.gov/im/units/arcn/. With questions, please contact the Arctic Network Data Manager, National Park Service (NPS), Arctic Network Inventory and Monitoring Program, 4175 Geist Road, Fairbanks, AK, 99709-3420; phone: 907-455-0600; email: Scott_Miller@nps.gov; websites: http://www1.nature.nps.gov/im/units/arcn/ and http://instaar.colorado.edu/QGISL/ARCN/.

METADATA AND CITATION

PLEASE READ the FGDC-compliant metadata files that are available for each dataset (in .html, .txt, and .xml formats). These files provide numerous details that may be of interest. Also, please cite this data release as: Lestak, L.R., Manley, W.F., and Parrish, E.G., 2010, Digital Shoreline Analysis of Coastal Change in Bering Land Bridge NP (BELA) and Cape Krusenstern NM (CAKR), Northwest Alaska: Fairbanks, AK: National Park Service, Arctic Network I&M Program. Digital Media.

FUTURE COASTLINE ANALYSIS

Future processing to update coastal change analyses can be achieved using DSAS, the transects template ("recalculate" transects) and the baseline template. For step-by-step instructions see Thieler, et. al., 2005 which is included with this data distribution.

FILE LIST

File or Folder Name	Title
0README_Coastal_change_analysis.pdf	Readme file (this file)
User_Guide_for_DSASv3_2.pdf	Thieler, et. al., 2005. User Guide for the Digital Shoreline Analysis System (DSAS) vs. 3.2.
►coastal_analysis	
bela_wl_baseline.shp	Baseline used for DSAS analysis for Bering Land Bridge NP
bela_wl_trans_template.shp	Transects used for DSAS analysis for Bering Land Bridge NP
cakr_wl_baseline.shp	Baseline used for DSAS analysis for Cape Krusenstern NM
cakr_wl_trans_template.shp	Transects used for DSAS analysis for Cape Krusenstern NM
►►bela_wl_dsas.mdb	ArcGIS personal geodatabase used for DSAS analysis
bela_wl_50a_03	Approx. 1950 and 2003 waterlines for Bering Land Bridge NP
bela_wl_50a_80a	Approx. 1950 and 1980 waterlines for Bering Land Bridge NP
bela_wl_80a_03	Approx. 1980 and 2003 waterlines for Bering Land Bridge NP
bela_wl_baseline	Baseline used for DSAS analysis for Bering Land Bridge NP
bela_wl_trans_50a_03	Transect DSAS analysis result feature class from approx. 1950 and 2003 for Bering Land Bridge NP
bela_wl_trans_50a_03_Distance	Related table for DSAS analysis statistic results from approx. 1950 and 2003 for Bering Land Bridge NP
bela_wl_trans_50a_03_Intersect	Related table for DSAS analysis statistic results from approx. 1950 and 2003 for Bering Land Bridge NP
bela_wl_trans_50a_80a	Transect DSAS analysis result feature class from approx. 1950 and 1980 for Bering Land Bridge NP
bela_wl_trans_50a_80a_Distance	Related table for DSAS analysis statistic results from approx. 1950 and 1980 for Bering Land Bridge NP
bela_wl_trans_50a_80a_Intersect	Related table for DSAS analysis statistic results from approx. 1950 and 1980 for Bering Land Bridge NP
bela_wl_trans_80a_03	Transect DSAS analysis result feature class from approx. 1980 and 2003 for Bering Land Bridge NP
bela_wl_trans_80a_03_Distance	Related table for DSAS analysis statistic results from approx. 1980 and 2003 for Bering Land Bridge NP
bela_wl_trans_80a_03_Intersect	Related table for DSAS analysis statistic results from approx. 1980 and 2003 for Bering Land Bridge NP
bela_wl_trans_template	Transects used for DSAS analysis for Bering Land Bridge NP
►►cakr_wl_dsas.mdb	ArcGIS personal geodatabase used for DSAS analysis
cakr_wl_50a_03	Approx. 1950 and 2003 waterlines for Cape Krusenstern NM
cakr_wl_50a_80a	Approx. 1950 and 1980 waterlines for Cape Krusenstern NM
cakr_wl_80a_03	Approx. 1980 and 2003 waterlines for Cape Krusenstern NM
cakr_wl_baseline	Baseline used for DSAS analysis for Cape Krusenstern NM
cakr_wl_trans_50a_03	Transect DSAS analysis result feature class from approx. 1950 and 2003 for Cape Krusenstern NM
cakr_wl_trans_50a_03_Distance	Related table for DSAS analysis statistic results from approx. 1950 and 2003 for Cape Krusenstern NM
cakr_wl_trans_50a_03_Intersect	Related table for DSAS analysis statistic results from approx. 1950 and 2003 for Cape Krusenstern NM
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cakr_wl_trans_80a_03_Distance	Related table for DSAS analysis statistic results from approx. 1980 and 2003 for Cape Krusenstern NM
cakr_wl_trans_80a_03_Intersect	Related table for DSAS analysis statistic results from approx. 1980 and 2003 for Cape Krusenstern NM
cakr_wl_trans_template	Transects used for DSAS analysis for Cape Krusenstern NM
►geodatabase_metadata	**Directory containing FGDC metadata for geodatabase features and tables (.txt, .html, and .xml).**

All map layers share a common projection and datum (UTM zone 3, NAD83) and come with FGDC metadata (.txt, .html, and .xml).